

REMARKS

This response and RCE are intended as a full and complete response to the Final Office Action dated September 7, 2006. In view of the following amendments and discussion, the Applicants believe that all claims are in allowable form.

AMENDMENT TO THE CLAIMS

Claims 1, 6-7 and 16 have been amended to more clearly recite aspects of the invention.

CLAIM REJECTIONS

35 U.S.C. §102

Claims 1 and 16

Claims 1 and 16 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent No. 6,565,662 issued May 20, 2003, to *Amano, et al.* (hereinafter referred to as *Amano*). The Applicants respectfully disagree.

Independent claims 1 and 16 recite elements not taught or suggested by *Amano* for at least two reasons.

- *Amano*, as applied by the Examiner, does not use a hinge to open a processing chamber.
- *Amano* does not teach or suggest all the claimed elements in the orientation claimed by the Applicants.

Specifically, *Amano* teaches using standing frames 64 having a side attached to an upper case 62 and a bottom side positioned in guide rails 67 to facilitate the movement of the upper casing 62 relative to a main body 61. The upper casing 62 is slid on the guide rails 67 and extended linearly outward to a predetermined position. (Figure 6C). Upon the upper casing 62 sliding to the predetermined position outward and away from the main body 61, the upper casing 62 may be rotated in a fixed axis of the standing frames 64 at the predetermined position, allowing the upper casing 62 to be rotated from a horizontal position to a vertical position outward and away from the main body 61. (Figure 6D). Thus, as the upper casing 62 linearly moves extending outward from the main body 61 to the predetermined position, the rotation of the upper casing 62 is

then be actuated to rotate. As such, the upper casting is not rotated until the upper casting has reached at the predetermined position away from the main body 61. Accordingly, the rotating process of the upper casting 62 is conducted between a first horizontal position and a second vertical position in the fixed axis of the standing frames 64 at the predetermined position away the main body 61. Thus, *Amano's* structure of rails and frames is not a hinge, which is an element of claims 1 and 16. Moreover, the lid of *Amano* cannot rotate about a shaft of a hinge between a first position sealing the open upper end of a chamber and a second position clear of the upper end, as recited by claims 1 and 16.

The Examiner asserts that *Amano's* apparatus teaches a fixed axis of rotation relative to the chamber body and located outward of the chamber body. The Applicants disagree, as although the upper casing is rotated when in a position outward of the chamber body, the axis of rotation moves with the upper casing along the rails, and therefore is not fixed relative to the chamber body. Additionally, the casing is move linearly clear of chamber body before rotating, and as such, is not rotated clear of the chamber body. Therefore, as *Amano* does not teach or suggest a hinge, and that the axis of rotation is not fixed relative to the chamber body, the Applicants submit that *Amano'* does not teach or suggest a lid assembly rotatable about a shaft of a hinge between a first position sealing the open upper end and a second position clear of the upper end.

Thus, the Applicants submit that independent claims 1 and 16 are patentable over *Amano*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claims 6 and 17

Claims 6 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable by *Amano* in view of United States Patent No. 6,469,448 issued October 22, 2002, to *Taguchi, et al.* (hereinafter referred to as *Taguchi*) in view of United States Patent No. 6,042,707 issued March 28, 2000, to *Moslehi, et al.* (hereinafter referred to as *Moslehi*). The Applicants respectfully disagree.

Independent claims 1 and 16 recite elements not taught or suggested by the combination of *Amano*, *Taguchi* and *Moslehia*. The teaching of *Amano* has been discussed above. *Taguchi* teaches a PVD deposition chamber. *Moslehia* teaches using magnetrons in a PVD chamber to facilitate a sputter process. However, modifying the processing chamber taught by *Amano* with a target as taught by *Taguchi* and/or a magnetrons as taught by *Moslehia* fails to teach or suggest a lid assembly rotatable about a shaft of a hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claims 1 and 16.

Thus, the Applicants submit that independent claims 1 and 16, and claims 6 and 17 and depending therefrom, are patentable over the combination of *Amano*, *Taguchi* and *Moslehia*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

35 U.S.C. §103 Claims 1-3 and 5

Claims 1-3 and 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over United States Patent No. 5,731,678 issued March 24, 1998, to *Zila, et al.* (hereinafter referred to as *Zila*) in view of *Taguchi*. The Applicants respectfully disagree.

Independent claim 1 recites elements not taught or suggested by *Zila* and *Taguchi*. *Zila* teaches an improved workpiece retainer 406 that provides precise and repeatable workpiece position of a workpiece W in a non-vacuum electroplating system. Operator arms 407 are used to rotate the workpiece W retained in the workpiece retainer 406 about a pivot axis 411 from a face-up position to a face-down position. (Col. 6, Lines 10-30). The pivot axis 411 is fixed in the workpiece retainer 406 to facilitate the rotation of the workpiece W and promote the transfer accuracy and speed of the workpiece W. The workpiece retainer 406 is rotated at the pivot axis 411 on a same vertical and horizontal plane right above the chamber body. In other word, the workpiece retainer 406 is rotated relative to itself at the pivot axis 4-11 fixed in the workpiece retainer 406 in a non-vacuum electroplating apparatus. *Zila* does not teach or suggest a PVD lid assembly rotatable about a shaft of a hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claim 1.

Taguchi merely teaches an inductively coupled RF plasma vacuum PVD deposition chamber utilized to improve non-uniformity in a substrate treatment process. The Examiner asserts that it would be obvious to provide a target mounted to a chamber lid to carry out a sputtering process as taught by *Taguchi*. Although the Examiner did not explicitly state that it would be obvious to modify *Zila* with the target of *Taguchi*, or the chamber of *Taguchi* with the workpiece holder lid of *Zila*, the Applicants submit that there is no motivation to make any of these modifications to render claim 1 obvious because there is no suggestion from within the references to make the asserted modifications.

Specifically, *Zila* is silent regarding how the top plate of the chamber is opened. As such, there is no motivation from within *Zila* to suggest any particular type of opening mechanism. *Taguchi* teaches a workpiece holder that is rotatable between a workpiece down position covering a bath and a workpiece up position that facilitates handoff of the workpiece to a workpiece handling mechanism. The rotating workpiece holder of *Taguchi* is combinable with *Zila*, as the workpiece holding apparatus and target both would occupy the same space, and because opening the chamber of *Zila* to retrieve a substrate would require breaking vacuum, resulting in extensive chamber down time for pumping and decontamination. Moreover, there is no motivation from within *Zila* to suggest modification with the type of opening mechanism taught by *Taguchi*.

Moreover, the references must be in the field of the applicants endeavor, or reasonably pertinent to the particular problem with which the inventor was concerned. See, M.P.E.P. §2141.01(a). "In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 U.S.P.Q. 560, 562 (CCPA 1972); M.P.E.P. §2143.01. Here, *Zila*'s workpiece retainer utilized to hold a workpiece in a plating apparatus is not pertinent to any problem associated with a PVD system as taught by *Zila*. Since both *Zila* and *Taguchi* address issues in different fields of endeavors (wet plating in an atmospheric pressure as compared to physical vapor

deposition in a vacuum environment), and not reasonably pertinent to the same particular problem as claimed by the present invention, the teachings in the references are clearly insufficient to suggest to one of ordinary skill in the relevant art to make the proposed substitution, combination or other modification to result in a PVD lid assembly rotatable about a shaft of a hinge between a first position sealing the open upper end and a second position clear of the upper end, as recited by claim 1.

Thus, the Applicants submit that independent claim 1, and claims 2-3 and depending therefrom, are patentable over *Zila* and *Taguchi*. Accordingly, the Applicants respectfully request that the rejection be withdrawn and the claims allowed.

ALLOWED CLAIMS

The Applicants thank the Examiner for indication of the allowability of claim 11-15 and 18.

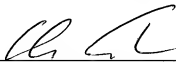
CONCLUSION

Thus, for at least the reasons discussed above the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and swift passage to issue are earnestly solicited.

If the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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Date



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